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PATENT
Customer No. 22,852
Attorney Docket No. 1435-118

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
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Edmund M. Carnahan et al.) Group Art Unit: 1713
)
Application No.: 09/869,578) Examiner: Rip A. Lee
)
Filed: October 23, 2001)
)
For: Process for Preparing a Supported)
Polymerization Catalyst Using)
Reduced Amounts of Solvent and)
Polymerization Process) Confirmation No.: 4596

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE

Reconsideration of the rejection of applicants' claims 1, 2, and 4-20 in the Office Action of April 20, 2004 is requested because it is believed that the claims are neither anticipated by nor could they be considered obvious in view of the cited U.S. Patent No. 5,783,512 to Jacobsen et al. (hereafter Jacobsen). The withdrawal of WO 98/45337 to Peil et al. in the Office Action as a ground of rejection of the claims is appreciated.

As described in the Reply filed December 17, 2003, a significant aspect of the present invention, as set forth in main claim 1, is the removal of the solvent after application of the first solution to the support precursor in step C and again after application of the second solution to the supported procatalyst in step D. In Example 1,

the solvent is only removed after application of the first solution, but not after application of the second solution. In Example 3, no solvent is removed after application of the first solution, but only after both solutions are applied. However, in Examples 2, 4 and 5 where the solvent is removed after application of both the first and second solutions, the resulting catalyst had activities of 99, 63, and 130 g/g HrBar, respectively, whereas in Examples 1 and 3 the activities were 40 and 53 g/g HrBar, respectively. Thus the removal of the solvent both after the application of the first and the second solutions while still maintaining the requirement that the second solution is provided in an amount such that 100% of the pore volume of the support precursor is not exceeded, has a positive effect on the activity of the resulting olefin polymerization catalyst.

In the Office Action, the Examiner rejected claims 1 and 5-16 under 35 U.S.C. §102(a) for being anticipated by Jacobsen and claims 2, 4, and 17-20 under 35 U.S.C. §103(a) for being obvious over Jacobsen. In the rejection, the Examiner primarily refers to Example 6 as illustrating the process taught by Jacobsen.

In Example 6, a borate solution is added to a support material and the mixture agitated. Column 23, lines 65-66. This would correspond to the “applying” step of part C of claim 1. However, nothing is mentioned about removing the solvent after application of the solution as required in part C..

The Examiner appears to believe that because the mixture is “agitated,” that this “results” in a “dry powder” (Column 23, line 66) and that therefore the solvent has been removed. However, agitation does not remove the solvent. For example, a solution of salt and water could be “agitated,” but this does not remove the water.

Moreover, the fact that it is a “dry powder” does not mean that the solvent has been removed. This assumption is not correct. The powder would be “visually dry” because the liquid is all contained in the pores of the support precursor. This is why the term “dry powder” is used in Example 6. Note in Example 6, that it specifically states that the volume of the borate solution corresponds to the “pore volume” of the support material. Column 23, lines 63-64. Accordingly, just because the mixture of borate solution and support is “dry,” does not mean the solvent has been removed.

If required, applicants are prepared to present a declaration of the inventor Grant B. Jacobsen of the Jacobsen patent that this is what was meant by the expression “dry powder” in Example 6 thereof.

The Examiner also makes reference to Example 5 of Jacobsen. However, here where the silica is subsequently dried under vacuum, relates to a different part of the preparation of the catalyst. This relates to the TEA treatment of the silica and not to the treatment in step C of claim 1 of the present application where either the cocatalyst or the complex is being added.

Jacobsen may disclose in Column 18, lines 31-33 removal of solvent after applying the transition metal complex, i.e., a step similar to step E of claim 1, but, for the reasons explained above, it is submitted that it fails to disclose removal of the solvent as required in part C. Withdrawal of Jacobsen as a ground of rejection of claims 1 and 5-16 under §102(a) is therefore requested.

Nor should the claimed invention be considered obvious over Jacobsen. Example 3 of this applicaiton, as noted above, is the same as the process of Jacobsen; namely, that no solvent is removed after application of the first solution (“agitation” of

the mixture and/or the existence of a "dry" powder as a result is not solvent removal), but only after both solutions are applied. Yet the activities of the catalyst of the invention examples (Examples 2, 4, and 5) were better than the activity of the catalyst of Example 3.

Accordingly, it is submitted that claims 2, 4, and 17-20 all of which are dependent from claim 1, cannot be considered obvious over Jacobsen either. Jacobsen does not teach or suggest the removal of the solvent as set forth in part C of claim 1 and M.P.E.P. §2143 requires that to establish a prima facie case of obviousness the prior art reference relied on must teach or suggest all of the claim's limitations. Moreover, even if it did, applicants have demonstrated improved and unexpected results (i.e., increased catalytic activity) sufficient to overcome any prima facie case of obviousness.

It is believed claims 1, 2, and 4-20 are in condition for allowance and such action is therefore requested.

If there is any fee due in connection with the filing of this Response, please charge such fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: July 19, 2004

By: 

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